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W. A. KELLERMAN, Ph. D.

OHIO STATE UNIVERSITY



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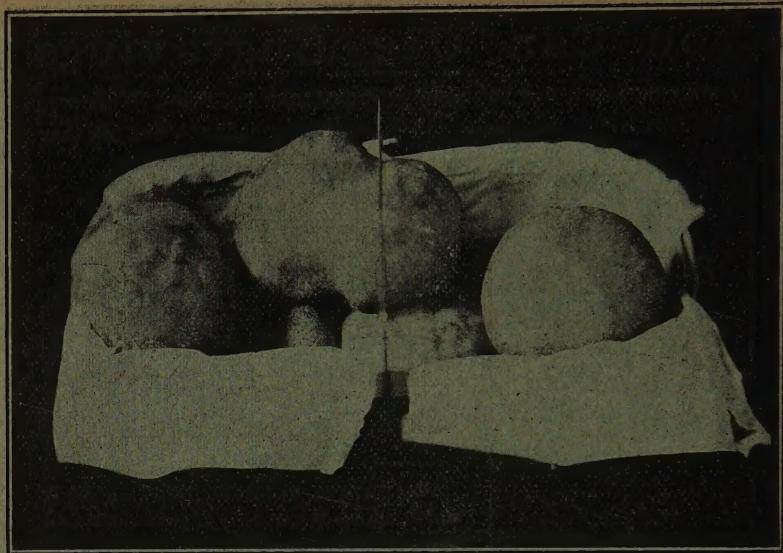
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No. 80

W. A. Kellerman, Ph. D., Ohio State University.

Columbus, Ohio, August, 1907.

A LACTARIOUS NUMBER.

Those interesting mushrooms that exude a milky or colored juice—shall we call them *Lactaria* as Persoon did in 1797, or *Lactarius*, as the great mycologist Fries did between forty and fifty years later, and which name has been in continuous use since?—Well, these *Lactariae* or the *Lactarii* will take precedence in this No. of the Bulletin. We have previously published a portrait of only one *Lactarius* as follows: *Lactarius volemus* (p. 219).

No additional photographs are at hand and we call on our subscribers for help. But we find recent articles by Miss Burlingham, a student of these plants in Columbia University, New York, most *apropos* and therefore levy tribute on her, see below.

NOTES FROM MUSHROOM LITERATURE. VI.

W. A. KELLERMAN.

A very interesting and very useful article containing "Suggestions for the Study of the *Lactariae*," by Gertrude Simmons Burlingham, is published in the June number of *Torrey*.

It will be noticed that the author adopts the name *Lactaria*, which she says was used by Persoon in 1797, thus antedating the *Lactarius* of Fries by nearly half a century.

A large portion will be copied, regretting only that we have not space enough for the entire article. The introductory part is as follows:

"There are only a few species of *Lactaria* which can be identified positively from dried specimens in the absence of field-notes. Furthermore, one who is not more or less familiar with the distinguishing characteristics of the species in this genus may make seemingly ample notes and yet omit some of the vital points, with the result that much otherwise valuable material becomes worthless or even misleading. Any such waste of time and material is especially lamentable in view of the fact that only a few scattered regions in the United States have been explored at all for any genus of the fleshy fungi. Approximately ninety species and varieties of *Lactaria* have been reported from the United States, fifty

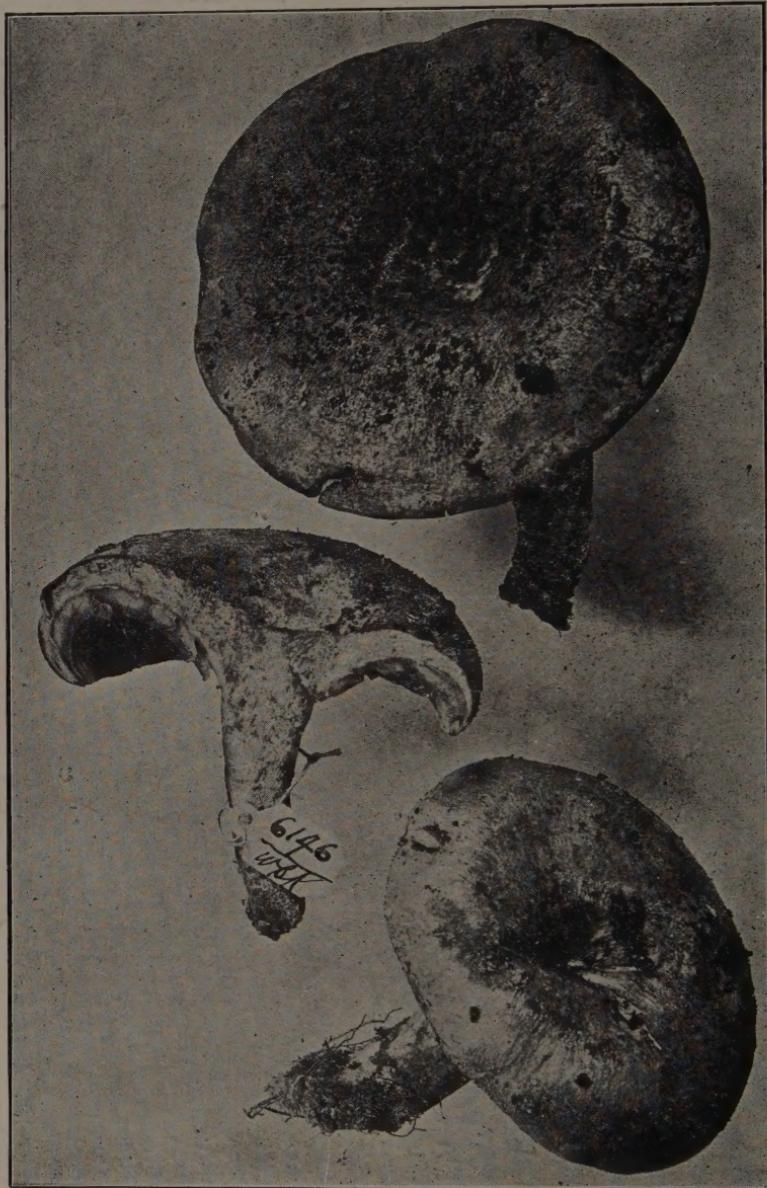


FIG. 257. *LAC-TA'-RI-US TRIV-I-A'-LIS*. Cap plumbous or faint lilac color. Gills and milk white. Columbus, Ohio, August, 1907.

of which have been described as new species; but of this number only five have been described from States west of the Alleghany Mountains, while from the majority of the States west of this line no species whatever have been reported. An economic as well as a scientific interest attaches to the genus, since *Lactaria deliciosa* and *Lactaria volema* are among the choicest of the esculent mushrooms, and several other species are considered nearly as palatable.

"The generic characters are conspicuous. The exudation from cuts and bruises in the flesh or gills, of a white or colored juice having the consistency of milk, is usually sufficient to mark the specimen as a *Lactaria*. In common with the *Russulae*, the *Lactariae* have a vesiculose structure which gives the flesh of both the stem and the pileus a cellular appearance much like pith, and in consequence of this structure, the flesh is readily broken and is never fibrous or tough, and the stem is never cartilaginous. The genus is characterized also by the occurrence in many species of concentric bands of deeper color on the surface of the pileus, producing what is termed a zonate pileus. The *Lactariae* are found chiefly in woods or on the border of woods, and they vary in size from species with the pileus less than 2 cm. broad to species having a pileus 15 cm. or more across.

Minute directions are then given as to observation and study of the milk, the pileus, the gills, the stem and habitat. As to color, she says: "One of the distinguishing points of a species is the color of the pileus. Not only is this a variable character, but two collectors may describe the same color in different terms. Much difficulty can be avoided if a collector uses some standard color scheme, as Saccardo's *Chromotaxia*. Perhaps the most complete and satisfactory color chart is *Reperoire de Couleurs* published by the French Society of 'Chrysanthemistes,' which gives 365 distinct colors in various tones, including the reproduction of the colors recognized by Saccardo. The color description should be made as soon as possible after collection and should include the color of young, mature and old specimens. If the pileus is zonate, the zonation should be described carefully."

Concerning the collection and preserving she says: "Of course, it is of primary importance that the different specimens or "numbers" gathered should be kept distinct. This is easily accomplished by carrying in the collecting basket a supply of various sized paper sacks, and a species may then be placed in a bag with the accompanying field-notes. Like care must be used during the process of drying the mushrooms; for the mushrooms must be dried and preserved, since the descriptions are as useless without the dried specimens as are the latter without field-notes. The *Lactariae* may be dried successfully by spreading them on a wire screen which may be put under the kitchen stove or suspended about three feet above it. Oven heat is liable to be too great for the best results. When possible, three or four typical specimens of a species should be preserved, representing both young and mature condition. When dry, the mushrooms, together with the field-notes, may be transferred to paper sacks again, or to suitable boxes, and filed away for future study and identification. If some time is to elapse before this study is to be undertaken, something like naphthaline flake ought to be put in the boxes to protect the mushrooms from the attacks of the larvae of moths and carpet beetles.

These points and others are summed up in the shape of a blank for descriptive notes, just the thing to carry in the field, and use in the laboratory, as follows:

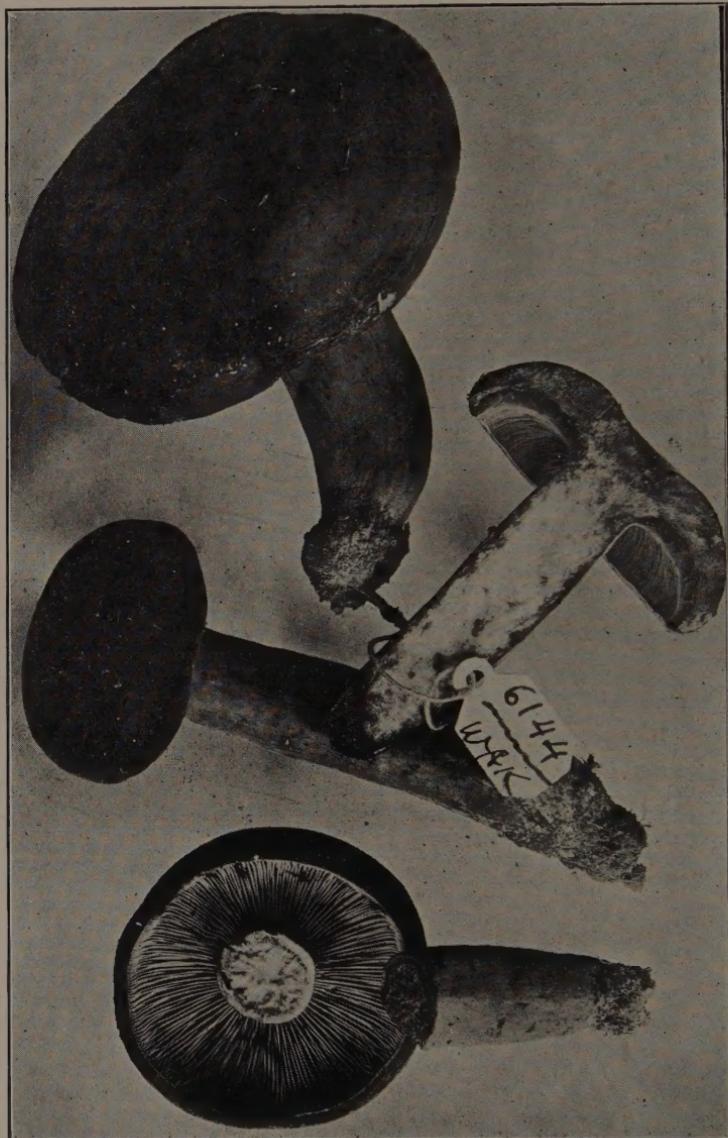


FIG. 258. *LAC-TA'-RI-US VO-LE'-MUS*. Edible. Dark orange cap; gills and milk white. Columbus, Ohio, August, 1907.

Miss Burlingham's Blank for *Lactaria*

Locality Date

Habitat

Milk

- color change taste

Pileus

- shape
- color, zonate or azonate
- surface, dry or viscid
- glabrous or pruinose, squamulose, pubescent, tomentose
- margin, glabrous, pruinose, downy tomentose
- even or striate

Stem

- color shape
- surface, dry or viscid
- glabrous, etc
- substance, solid, or lax, becoming hollow

Gills

- color does the color change with age?
- where bruised
- number, distant or close
- arrangement, entire or branched, number of series

Spores

- color in mass

Flesh

- color, does it change where broken?
- odor

Size of plants

Solitary or gregarious

Additional Notes or Sketches

By

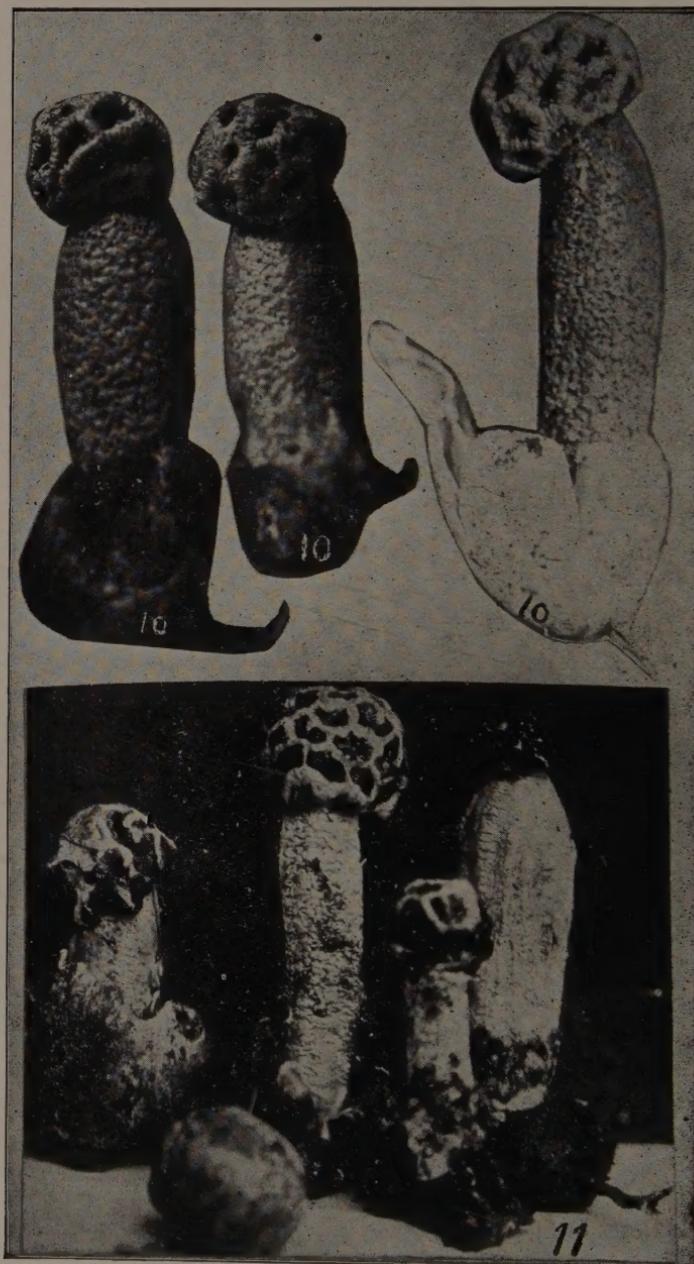


FIG. 259. *SIM'BLUM SPHAERO-CEPHALUM* (10) and *SIM-BLUM TEX-EN'-SE*. Prof. W. H. Long. See Phalloidæ in previous Number.

MORE ABOUT THE SAME PLANTS BY THE SAME AUTHOR.

Miss Burlingham previously published an interesting article on "Some Lactarii From Windham County, Vermont," in the Bulletin of the Torrey Botanical Club, describing five new species and giving an excellent key for all the species encountered in that region. The new species are *Lactarius aspideoides*; *Lactarius Bensleyae*; *Lactarius isabellinus*; *Lactarius minusculus*; *Lactarius nitidis*, and *Lactarius oculatus*.

The key bases the first division exclusively on the color of the milk, as follows:

Milk bright colored from the first, wounds often turning greenish....	Section I
Milk at first white, then changing color	Section II
Milk white and unchanging	Section III

Under Section I the colors mentioned are orange, (*L. deliciosus*); saffron-yellow (*L. chelidonium*); dark red (*L. subpurpureus*), and indigo-blue (*L. indigo*).

Under Section II three division lines are drawn, namely: Milk becoming sulphur-yellow; Milk becoming salmon, and Milk becoming lilac.



FIG. 260. RUS'-SU-IA NI'-TI-DA. Cap red; gills white but soon turning deep yellowish. Taste very bitter. Woods, Columbus, Ohio, August, 1907.

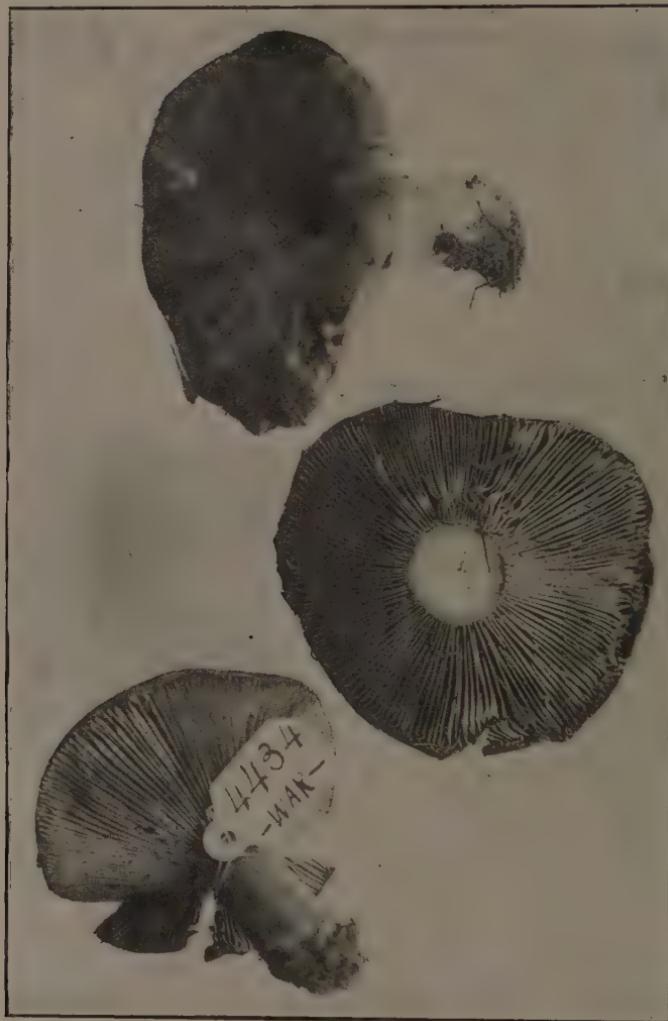
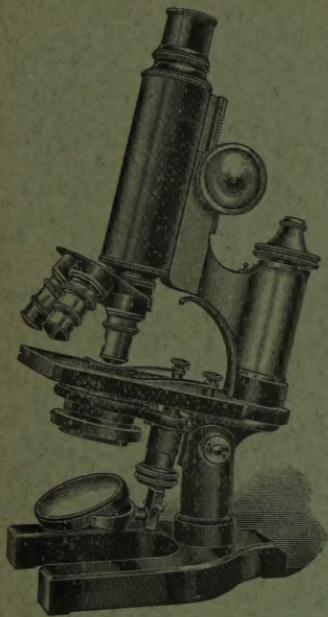


FIG. 261. *LAC·A'-RI-US DE·LI·CI-O'-SUS*. Edible. In damp woods, July to October. A widely-distributed plant well known in Europe, the specific name suggesting the estimate in which it is held by mycophagists. Color, some shade of orange or mottled, and with concentric bands. Photo from specimens furnished by Supt. M. E. Hard, Chillicothe, Ohio.

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